



RIVENHALL INTEGRATED WASTE MANAGEMENT FACILITY
ADDENDUM TO LVIA

Prepared for Gent Fairhead & Co Limited

by

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1 INTRODUCTION

1.1 Background

- 1.1.1 This report is an addendum to the Landscape and Visual Impact Assessment (LVIA) which was originally prepared as Chapter 8 of the Environmental Statement for the Integrated Waste Management Facility (IWMF) at Rivenhall Airfield, north-east of the village of Silver End, east of Braintree in West Essex, on behalf of Gent Fairhead & Co Limited. The LVIA, dated August 2008, was prepared by Golder Associates to support Planning Application No ESS/37/08/BTE which was submitted on 28 August 2008. The IWMF was granted planning permission by the Secretary of State following a Public Inquiry (appeal ref: APP/Z1585/V/09/2104804) on 2 March 2010. Further planning applications have been made to vary the consented planning conditions against which planning permission was granted with variations to Condition 2 (ESS/37/08/BTE), Condition 1 (ESS/41/14/BTE) and Conditions 28 and 30 (ESS/55/14/BTE) – the latter being the most recent and extant permission relating to the development of the proposed IWMF. This addendum has been prepared by Hankinson Duckett Associates and by the same author as the original LVIA.
- 1.1.2 Some of the information sources listed in the LVIA have been superseded and, apart from the planning policy situation, this has not resulted in fundamental changes to the baseline situation. For example, National Character Areas are now published as a web-based resource (as introduced 30 September 2014 by Natural England), and although the key characteristics as listed at paragraph 8.2.2.1 of the LVIA have been amended, the new publication has not altered the boundaries of Character Area No 86 – the South Suffolk and North Essex Clayland, within which the site lies.
- 1.1.3 The planning policy situation has inevitably changed, with the Essex and Southend Replacement Structure Plan (April 2001) initially being superseded by the Regional Strategy for the East of England, which in turn was revoked (with effect from 3 January 2013). The current Essex and Southend Waste Local Plan was adopted in 2001 and its policies will continue to be applied until the adoption of the replacement Waste Local Plan 2032. The Waste Local Plan will form part of the Minerals and Waste Development Framework, though it is not due for adoption until December 2016. The Braintree District Local Plan Review (July 2005) has now been superseded by the Core Strategy which was adopted in September 2011.
- 1.1.4 The published regional and district landscape character assessments have not been updated since the preparation of the original LVIA, however, a third edition of “*Guidelines for Landscape and Visual Impact Assessment*” (GLVIA) by the Landscape Institute and Institute of Environmental Management and Assessment, has been published (2013).

Despite this update to the 2002 guidelines, the principles of the methodology used in the LVIA remain the same.

2 BASELINE ENVIRONMENT

2.1 General Site Description

2.1.1 The only changes in the baseline situation are that Hangar No 2 has already been removed, together with an ancillary building to its north and associated woody vegetation, and arable land and hard surfaced areas of the former airfield runways to facilitate the permitted quarrying operations by Blackwater Aggregates. On the 9 February 2012 planning permission (ESS/32/11/BTE) was granted to Blackwater Aggregates for the extension of its quarrying operations into an area known as "Site A2" which overlaps and incorporates a significant area of the IWMF footprint.

2.1.2 The application was described as follows:

Extraction of an estimated reserve of 900,000 tonnes of sand and gravel and retention of existing access onto the A120, private haul road, sand and gravel processing plant, ready mixed concrete plant, bagging plant, dry silo mortar plant and water management system, internal haul roads and recontouring of existing extraction area (known as Site R in Minerals Local Plan) with restoration to a combination of agriculture, woodland, nature conservation, water lagoons and to levels appropriate to safeguard implementation of planning permission ESS/37/08/BTE (Integrated Waste Management Facility).

2.1.3 In addition, planning permission has been granted for the extension of quarrying operations into Sites A3 and A4 (ESS/03/14/BTE) to the north of the IWMF site for the following:

Extraction of an estimated reserve of 3 million of sand and gravel (from Sites A3 and A4 as identified in the Pre-Submission Draft Replacement Minerals Local Plan) and retention of existing access onto the A120, private haul road, sand and gravel processing plant, ready mixed concrete plant, bagging plant, dry silo mortar plant and water management system, internal haul roads and recontouring of existing extraction areas (Sites R and A2) with restoration to a combination of agriculture, woodland, biodiversity, water lagoons and to levels appropriate to safeguard implementation of planning permission ESS/37/08/BTE (Integrated Waste Management Facility).

2.1.4 The Environmental Impact Assessment submitted with the application(s) took into account the requirements of the Minerals Local Plan and considered the cumulative impacts associated with its development against Site A2, Sites A3 and A4 and the unimplemented IWMF planning permission.

2.1.5 Whilst the development of Site A2 has resulted in a localised change in ground levels in and around the vicinity of the IWMF site, this would be in line with the Site Specific Issues within the Minerals Local Plan:

2.1.6 Careful consideration has been given to the final low-level restoration contours to ensure the final landform blends with the surrounding topography and would blend with the levels and planting of the strategic waste management development (Ref ESS/37/08/BTE) if implemented.

2.1.7 Recent and ongoing quarrying operations in and around the IWMF have resulted in a change in landform, but have not affected the overall landscape mitigation strategy associated with its development.

2.2 Landscape Character

2.2.1 Changes to the landscape character publications at a national level are described above, but other than this, the description of the baseline landscape character at the regional and district level has not changed from the 2008 LVIA. The only changes to the description of landscape character at the local level are changes in the permitted and proposed quantities of sand and gravel to be extracted in the local area. It is proposed that Bradwell Quarry will continue to expand, but this would be followed by an ongoing programme of restoration once extraction has ceased. The landscape quality of the study area was assessed as Good (Category 3) to Ordinary (Category 4) and although this assessment has not changed in the intervening period, it is anticipated that landscape quality should improve in the long term with the implementation of planting proposals not only within the red line boundary but also as part of the restoration proposals for the worked out areas of sand and gravel extraction.

2.3 Visual Receptors

2.3.1 The current views experienced by the principal visual receptors within the vicinity of the site as described in Tables 8-4, 8-5, 8-6 and 8-7 of the LVIA have only changed where receptors are likely to have views of the recently extended quarrying operations. Sand and gravel extraction is now ongoing on the land between some visual receptors and the site of the proposed IWMF. Otherwise, the descriptions of views as described in the baseline of the LVIA have not changed.

2.4 Landscape Designations and Other Landscape Elements

2.4.1 As stated above (paragraph 1.1.3), the Regional Strategy for the East of England was revoked in January 2013, and the Braintree District Local Plan Review has been superseded by the Core Strategy (adopted in September 2011). Appendix 1 of the Core Strategy lists those BLP Review policies that have been replaced by Core Strategy

Policies. Policy RLP79 regarding Special Landscape Area has been replaced by Core Strategy Policy CS8 Natural Environment and Biodiversity, and Policy RLP78 regarding Countryside Protection has been replaced by Policy CS5 on Countryside. In Appendix 1 of the Core Strategy, there is not a direct replacement for Policy RLP87 on Protected Lanes or Policy RLP81 which provided guidance on trees, woodlands, grasslands and hedgerows.

2.4.2 The baseline conditions described for topography, geology and hydrology have not changed from those reported in the LVIA. In the land use and vegetation section of the LVIA, the areas of grassland (1.5ha) and arable land referred to have already been removed by quarrying operations and similarly, Hangar No 2 and two smaller dilapidated brick buildings to the north-west of the hangar as described in the historical and cultural components section have already been removed in advance of quarrying.

3 POTENTIAL EFFECTS ON LANDSCAPE AND VISUAL RECEPTORS

3.1 Scheme Proposals

3.1.1 The extent of the red line boundary is unaltered at 25.3 hectares. A detailed overview of the changes that have been made to the IWMF's layout and overall development footprint are presented in Tab 3 "Proposals Note to support Section 73 variation application" by Ralph Keeble. In summary, the amendments to the suite of outline activities, as originally identified and presented in Table 8.8 of the LVIA, are as follows:

Table 1: Outline Construction and Operational Activities

No.	Activity
	Construction
1.	<i>Site access:</i> No change.
2.	<i>Site clearance:</i> The existing aircraft hangar and other ancillary buildings have already been removed as part of the approved Site A2 quarrying operations (ESS/32/11/BTE). In addition, an area of TPO woodland G1 and TPO trees T1, T2 and T8 have been removed as part of the quarrying operations (0.18ha). The area of woodland to be removed from the footprint of the proposed IWMF development has been reduced with 1.84ha still to be removed. Perimeter belts of existing woodland would continue to be retained (the area of existing woodland to be retained within the red line boundary (parts of W2 and W3, all of G3, T4/T5 and T6/T7) is 1.4ha (given as 3.6ha in the LVIA but this referred to the whole TPO). The area of proposed new native species woodland within the red line boundary would be 2.98ha (given as 2.2ha previously), plus an area of 1.3ha proposed outside the red line boundary, to the south-east of the proposed IWMF.
3.	<i>Site establishment:</i> Extraction of some of the overburden materials and sand and gravel to form the reduced levels on which the proposed IWMF will be constructed has already commenced as part of the current quarrying operations. However, overburden materials/sand and gravel still lying under the woodland proposed to be removed, will also need to be subsequently removed. The installation of retaining features will still be required, but rather than being vertical hard concrete walls as previously proposed, sloping soil nailed walls are now proposed.
4.	<i>Construction phase:</i> The overall footprint of the proposed IWMF has been reduced [by approximately 28 metres in length (11%) and 14 metres in width (6%)], which in turn, has reduced the area of its 'green' roof. The reduction in the overall footprint of the IWMF has resulted in gains in the areas of soft landscape treatment around the side slopes adjacent to the building, leading to increases in

No.	Activity
	<p>the areas of biodiverse habitats.</p> <p>The main IWMF building would still be contained under a double arched roof, accommodating the waste reception, treatment, preparation and recycling technologies (Materials Recycling Facility (MRF), Anaerobic Digestion (AD) plant, Mechanical Biological Treatment (MBT) and Pulp Facility). A single AD process tank, sections of the Waste Water Treatment Plant (WWTP), the Biogas Flare, the Combined Heat and Power (CHP) plant and the Air Cooled Condensers would still be located at the southern end of the IWMF building or south of it, albeit with a modified general arrangement. The dimensions of the CHP stack would not be altered at 35m in height above an average original ground profile of 50m AOD (the maximum elevation of the CHP stack remains unaltered at 85m AOD). The width of the stack would be unaltered at 7m diameter. The areas of new hard-standing around the building would remain generally unaltered.</p> <p>The maximum surface area of the Upper Lagoon, the proposed freshwater lagoon to the north of the proposed IWMF building, would be approximately 1ha including wetland edges of marginal planting (the maximum capacity of the lagoon would be reduced from 90,000m³ to 25,000m³). Areas retained at existing ground level would be planted, particularly along the western perimeter of the IWMF and to the north of Woodhouse Farm, to help screen the IWMF from long-distance views.</p> <p>The adjacent, currently derelict Woodhouse Farm (some buildings of which are Grade II listed) would be refurbished, improved and redeveloped as an Education Centre for the public. A car park serving the IWMF and the Woodhouse Farm Education Centre, would have a maximum capacity for at least 78 cars and 3 coaches. The Education Centre will be screened from the proposed IWMF by the intervening existing woodland, though planting around the car park would reinforce this screen.</p>
	Operation
5.	<i>Operational phase:</i> Existing and proposed planting around the IWMF would gain maturity and stature during the long term operation of the IWMF.

3.1.2 Drawing 8-6 has been amended to show the latest proposals. As stated above, the extraction of overburden, sand and gravel, has been completed within Site A2 and restoration operations are ongoing. The IWMF will be developed within the footprint of the Site A2 quarry. The construction period for the proposed IWMF is currently anticipated to take between around 36 months to complete, inclusive of commissioning. The LVIA stated that “*if the eRCF were granted permission it should be operational by 2012 at the earliest*”. The current timeframe is that the IWMF could be fully operational by 2019 at the earliest.

3.2 Landscape Impact Assessment

Impact on Landscape Character

3.2.1 The LVIA assessed the effects of the proposed development on landscape character in the context of the existing site conditions and the condition of the surrounding landscape at a baseline of June 2008. Since June 2008, permitted quarrying operations have taken place on the site, therefore the current baseline has seen a marked degree of change in the landscape since the previous baseline. This assessment has therefore looked at the conditions on site as they currently exist (at March 2015) and assesses the degree of

change from this time resulting from the development to determine the overall impact of the IWMF.

3.2.2 The published regional landscape character assessment for the area (Essex LCA, 2003) has not been updated since the LVIA was written, therefore the sensitivity of the Central Essex Farmlands landscape character area to change has not be altered from its original classification of low. The landscape has demonstrated that it is able to tolerate change, albeit temporarily, with the extraction of minerals, and the proposed restoration scheme following quarry operations will replace some of the distinctive qualities that contribute to landscape character. The magnitude of change on the local landscape resulting from the permitted or modified IWMF will not be that different, therefore the original classification of medium to low magnitude of change would equally apply to the modified IWMF as that assessed for the permitted IWMF. The two schemes are similar in size which when compared to the extent of the existing quarry operations and the size of the disused airfield, are relatively small. The significance of effects on landscape character, therefore remains at minor adverse.

3.2.3 The local landscape character area was identified as industrial, and although many of the site's features associated with its use as an airfield, and more recently as a storage facility, have been removed by the quarry operations, the site continues to exert an industrialising influence on the surrounding rural character. The landscape character of the study area continues to be able to accept large degrees of change and the changes now suggested between the permitted and modified IWMF would be the next progression in this series of changes. An industrial structure would be introduced into an industrial landscape, so it would not be out of keeping with the current character. Built development would be separated from the surrounding rural landscape by areas of existing and proposed woodland.

Impact on Landscape Resource

3.2.4 The loss of existing vegetation on the site resulting from the construction of the modified IWMF would be similar to the quantities that would be lost as a result of the approved IWMF. Vegetation to the north of the former Hangar No 2 has already been removed as part of the Site A2 quarrying operations, together with the former small derelict airfield buildings (including the control tower) around which this vegetation was clustered. An area of approximately 1,400m² has been removed from this location, as reported in the former LVIA, comprising G1, together with T1, T2 and T8. The main block of woodland along the southern edge of the site has not been affected by the current quarrying.

3.2.5 The total area of existing woodland to be removed as a result of the IWMF should be slightly less than the previously reported figure of 1.6ha. The width of the retained tree

belt around the perimeter of the site has increased from 25m to about 30m; the revised design retains an additional 5m belt of trees along its southern boundary, which offers a marginal improvement in the overall retention of existing TPO trees around the Site. With the IWMF building moving slightly further to the north-west and soil nailed walls being used rather than vertical concrete walls, there would be a greater offset distance between the retained edge of existing woodland and the proposed building. In the original planning application, it was reported that reducing the ground levels adjacent to the retained trees could lead to changes in the availability of ground water; however, with the revised scheme now proposed, a larger body of unaltered earth profile would be retained adjacent to these trees with a new woodland edge planted on the resultant side slope. The retained woodland would still be managed as previously proposed, to promote a greater age range in the trees retained and improve the woodland's ecological diversity, and the trees would continue to be monitored for any signs of stress arising from potential de-watering. The four mature oak trees on the north-east edge of the site (see T4 to T7 on Drawing 19-2) would still be retained with the revised scheme.

3.2.6 All trees within the red line boundary (including those mentioned above) are protected by Tree Preservation Order (Ref 11/2001 as issued by Braintree District Council) and any losses arising from the construction of the proposed IWMF would need to be mitigated with compensatory planting. The location of barrier fencing erected to adequately protect the retained trees from damage during the construction phase of the works is shown on Planning Drawing No 19-3. The extent of proposed woodland, woodland edge and hedgerow associated with the proposed mitigation measures is shown on the suite of Soft Landscape Proposals Plans (Drawings HDA SA1 and HDA SL1 to SL5). Quarrying operations within Site A2 have already resulted in the removal of the areas of grassland and Grade 3a arable land within the red line boundary (previously reported as 1.5ha of grassland and 10.9ha of arable land). A 250m long hedgerow, that had been planted along the northern edge of the former runway, as part of the advanced works for Bradwell Quarry, has since been translocated during the A2 mineral operations to the Wayfarers Field where it delineates the south-east boundary of the additional woodland planting. With some vegetation losses having already taken place with the quarrying, the magnitude of change on landscape resources is likely to be less than the Medium as assessed previously. Given the extent of the quarrying operations within Site A2, the magnitude of change on the current and proposed restored landform would be Low.

3.2.7 The short-term impact on the landscape character of the area was reported in the previous LVIA as Minor Adverse (based upon an assessment of Low sensitivity and Medium magnitude of change), and although there have been some improvements in the quantities of losses of landscape resources, being less than previously reported, it is considered that this assessment will not be changed by the scheme now proposed.

Similarly, long-term landscape impacts on the wider landscape (the 'North Essex Claylands') were reported as Negligible, and as there is very little change in the relative size of the IWMF in comparison to, and when viewed against, activities in the surrounding landscape, this assessment will also remain the same with the scheme now proposed.

3.3 Visual Impact Assessment

- 3.3.1 The IWMF building now proposed would not, in visual terms, be markedly different from that approved. As described in the original application, the floor levels of the proposed IWMF would be built below existing ground levels with the apex of the curving arches of the main building being 9.75m to 12.75m above existing ground levels (top of roof at 60.75m AOD, with surrounding ground levels being 48-51m AOD). The main element of the proposed development, which would project above the perimeter tree screen, would be the stack from the CHP. The dimensions of the stack have not changed from the approved scheme, therefore it will extend 35m above the average ground level of 50m AOD (top of stack at 85m AOD). Condition 56 (of the decision notice for the eRCF, application reference APP/Z1585/V/09/2104804) states that "*only one stack shall be erected on the sitethe height of the stack shall not exceed 85m AOD*". As described in the original application, the upper portions of the 7m diameter stack would be clad in stainless steel to reflect and mirror the surrounding environment, thus making its appearance as unobtrusive as possible.
- 3.3.2 The 30m wide belt of existing woodland retained around the south-eastern and south-western site boundaries will provide screening for viewpoints from the south, whilst proposed planting to the east, north and west of the IWMF would help to mitigate any potential visual impacts still further.
- 3.3.3 Although quarrying operations within Site A2 have now changed the baseline situation as it was reported previously in the 2008 LVIA which has resulted in quarrying and restoration operations taking place on land between some of the visual receptors and the site of the proposed IWMF, it is considered unlikely that the visual impacts on each receptor group arising from the proposals would be different from that reported previously in Tables 8-9 to 8-12 of the LVIA. The LVIA concluded that the property of Deeks Cottage (Location R5 on Figure 8-4) was the only residential receptor likely to experience Moderate Adverse levels of visual impact as a result of the construction of the proposed IWMF. This property, and others along Cuthedge Lane, now have quarrying between them and the location of the proposed IWMF, so their visual amenity has, albeit temporarily, been reduced, but restoration is likely to contribute to screening of the proposed IWMF. In addition to Deeks Cottage, the residential properties of Haywards (R4), Herrings Farm (R6), Sheepecotes Farm (R11) and a limited number of properties on the eastern edge of Silver End (R12 and R13) were assessed as having Minor Adverse

levels of visual impact as a result of the approved eRCF during construction, and these levels of visual impact are unlikely to be altered with the construction of the proposed IWMF.

3.3.4 The assessment of visual effects on users of public footpaths is also unlikely to change from that reported in the LVIA as a result of the proposed IWMF. The Moderate Adverse visual impacts at Year 1 for users of P2 and P6 would remain, with other paths in the area assessed as Minor Adverse. During operation of the IWMF, the levels of visual impacts experienced by footpath users would remain at Minor Adverse.

3.3.5 In summary, the low levels of visual impact as assessed for the approved eRCF would not be altered by the proposed IWMF, which would be of a similar size and with a similar degree of proposed planting around it, to help mitigate the impacts. The small adjustment to the location of the CHP stack does not materially affect the presence, appearance or location of the stack presented on the photomontages. The positional change would be barely perceptible on the photomontages, therefore, no update is considered necessary to these drawings (the updated assessment continues to consider the presence and appearance of the CHP stack above the existing and proposed landscape mitigation proposals).

4 PROPOSED MITIGATION MEASURES AND ENHANCEMENT MEASURES

4.1 Principles of Mitigation Measures

4.1.1 The six key objectives for the mitigation proposals as set out in the LVIA have not been changed and still hold true for the proposed IWMF. It is still intended that the mitigation measures would extend and enhance the existing adjacent woodland habitats. Previously, the proposals included 2.2ha of scrub/woodland, whereas this has now increased to almost 3ha (with another 1.3ha outside the red line boundary to the south of the site). Similarly, the 350 linear metres of hedgerow previously proposed has been increased to 530 linear metres (including hedges in the proposed car park adjacent to the Education Centre). The landscape mitigation proposals in and around the IWMF also target the delivery of biodiverse priority habitat creation, in line with The Implementation of Biodiversity and Habitat Creation Target Topic Paper, July 2013.

4.1.2 The location of proposed tree/scrub planting has not fundamentally changed from the previous scheme, with a substantial triangular area of planting still located to the north-west of the car park and belts of planting on either side of the main IWMF building. An additional area of planting that was not included in the previous scheme has arisen from the proposed use of the soil nail walling, above which batter slopes at 1 in 3 maximum gradient have been introduced that can be planted. Thus, along the southern edge of the site, the depth of retained woodland would be at least 30m wide, in front of which would

be planted a belt of woodland and woodland edge mix to a width of at least 20m. This proposed belt of planting would act as a buffer between the existing retained trees and the proposed IWMF building, reducing the risk of dewatering on the retained trees. It is anticipated that with the introduction of this planting, there would no longer be a need to coppice the retained trees within a 5m wide strip back from the cleared edge (as suggested in the Regulation 19 submission, December 2008) as previously proposed, although the condition of retained trees in W2 and W3 will be monitored and any remedial action taken if dewatering is found to be an issue.

- 4.1.3 Surface water collected from the buildings' roofs and other areas of hard standing would, as in the previous scheme, be stored in the Upper Lagoon located to the north-west of the IWMF building. The surface water collected and stored within the lagoon would be recirculated and reused within the IWMF. The capacity of the lagoon has been reduced from a maximum of 90,000m³ to 25,000m³, with the maximum surface area reducing from 1.6ha to 1ha. This redesign of the Upper Lagoon has had the effect of increasing the available area for additional long-term landscaping.

4.2 Building Design

- 4.2.1 The principles of adopting simple, clean lines for the proposed building have been maintained in the revised scheme. The building would retain its predominantly horizontal profile to reflect the existing landform, and the double arched roof is still proposed and is reminiscent of an aircraft hangar. The colours of the cladding materials to the building have been slightly amended, and though these would still be predominantly dark, it is proposed to reduce the overall impression of the mass of the building by grading the colours up its elevation, with the darkest colour (e.g. 'Anthracite' in the Colorcoat HPS200 Ultra range) above the blockwork plinth, grading through to a lighter colour below the roof line (e.g. 'Alaska Grey').

- 4.2.2 **Illumination:** No changes are proposed to the IWMF's exterior lighting. Lighting will be controlled by planning conditions 43 and 44, namely, the lighting shall not exceed 5 lux maintained average luminance

- 4.2.3 **CHP Stack:** Although the dimensions of the CHP stack have not been altered from the previous scheme, for clarification, it will extend an average height of 35m above surrounding ground level to a maximum elevation of 85m AOD. With the surrounding retained woodland assumed to have an average height of 15m, the stack will be 20m above the surrounding tree line (18.7m to 21.7m based on actual ground levels around the perimeter of the IWMF). As previously proposed, the upper part of the stack (above the tree line) will be clad in stainless steel to minimise its visual impact by reflecting the colours of the sky.

- 4.2.4 **Roof Design:** A pre-cultivated sedum blanket will be used to cover the roof of the IWMF. The sedum covering will provide a biodiverse hybrid roof to mitigate the visual appearance of the IWMF within the wider landscape. The change from a crushed concrete covering will improve mitigation measures within the wider landscape.
- 4.2.5 The pre-cultivated sedum blanket will contain a mix of hardy sedum species with some grasses and moss. Over time, other species will be allowed to naturally colonise the blanket and to hasten establishment, the following methods could be employed:
- Creating multiple rooftop meso-habitats by dividing the roof into areas containing different locally sourced substrates (e.g. gravel, topsoil, crushed concrete). This also encourages a wider range of plant species;
 - Introducing local plant species by collecting and scattering seeds from habitats in the local area; and
 - Creating habitat features, such as logs, rubble and clay deposits to provide a habitat for target species, such as invertebrates.
- 4.2.6 These methods will serve the dual purpose of ensuring accelerated vegetation cover and establishment, whilst improving the aesthetics of the roof in the initial stages following the IWMF's development. It also allows selected areas of vegetative establishment to be controlled.
- 4.2.7 **Woodhouse Farm Visitor and Education Centre:** Two buildings within the proposed application site are listed as being of Special Architectural Interest and will be redeveloped (as part of a proposed Education Centre and office(s) linked to the IWMF operations) following a detailed application for, and receipt of, listed building consent from Braintree District Council under Section 7 of the Planning (Listed Buildings and Conservation Areas) Act 1990 (c. 9).
- 4.2.8 **Retaining Walls:** The original design of the IWMF proposed vertical concrete retaining walls to deliver the required building and waste processing footprint, below ground level within the confines of a quarry. With the advance in waste treatment technologies and civil engineering construction techniques, a reduction in the overall processing footprint has been accommodated to allow specialist ground engineering companies to consider a change in the proposed earth retention technique from vertical retaining walls to sloped soil nailed walls and natural side slopes. The soil nailed solution that is now proposed to deliver the revised IWMF's building and waste processing footprint below ground level offers the following: an increased area for landscape mitigation; a biodiverse crushed concrete or similar aggregate slope face; an increase in natural slopes around the IWMF; and overall improvements and gains in landscape mitigation (existing woodland

management and the mitigation of dewatering impacts) over and above that originally proposed with the vertical concrete retaining wall solution.

4.3 Screen Planting

4.3.1 **Landform Reconstruction:** The proposals to create slightly higher than previous landforms in the larger areas of proposed woodland planting will largely remain unaltered from that described for the approved eRCF. The re-profiled ground levels would be delivered around the perimeter of the site and are intended to modify existing ground elevations to improve the overall landscape mitigation proposals. Re-profiling will result in localised changes in ground levels of between 1m to 2m. The topsoil was stripped from the site in advance of the Site A2 quarrying operations and is currently stored within the perimeter screening mounds. This topsoil is available for use within the site as and where required, but to conserve these limited reserves of topsoil and to reduce the environmental effects of bringing topsoil to site, it is now recommended that topsoil will be limited to planting pit preparation in the woodland and woodland edge planting areas rather than being spread across the whole planting area, where it will only encourage the growth of pernicious weeds causing future maintenance problems.

4.3.2 **Plant Species:** Changes are proposed to the woodland mix following the introduction of Ash Dieback Disease to the country since the LVIA was written. The Ash (*Fraxinus excelsior*) has been substituted for Small-leaved Lime (*Tilia cordata*), however, there are no changes proposed to the species mix for the woodland edge mix (except for percentages of each species in the mixes as set out below). The stocking rate for the woodland mix has been amended from 2,500 plants per hectare (2m centres) to 4,444 plants/ha (1.5m centres), and the stocking rate for the woodland edge mix has been amended from 3,500 plants/ha (about 1.7m centres) to 10,000 plants/ha (1m centres). The hedgerow mix has been amended as have the percentages of each species in the mixes and these changes are as set out below. All the changes described above reflect the latest information for the site as presented in the Habitat Management Plan (HMP, Golder Associates Ltd, April 2011).

Woodland Mix		% in LVIA	% in HMP
Acer campestre	Field Maple	10%	5%
Betula pendula	Silver Birch	10%	10%
Corylus avellana	Hazel	10%	15%
Malus sylvestris	Crab apple	5%	5%
Prunus avium	Wild Cherry	10%	10%
Quercus robur	Pedunculate Oak	30%	30%
Tilia cordata (was Ash)	Small-leaved Lime	25%	25%

Woodland Edge Mix		% in LVIA	% in HMP
Acer campestre	Field Maple	10%	10%
Cornus sanguinea	Dogwood	5%	5%
Corylus avellana	Hazel	20%	20%
Crataegus monogyna	Hawthorn	35%	35%
Ilex aquifolium	Holly	10%	10%
Malus sylvestris	Crab Apple	5%	5%
Prunus spinosa	Blackthorn	10%	10%
Viburnum opulus	Guelder Rose	5%	5%

Hedgerow Mix		% in LVIA	% in HMP
Acer campestre	Field Maple	-	5%
Corylus avellana	Hazel	20%	15%
Crataegus monogyna	Hawthorn	50%	75%
Ilex aquifolium	Holly	10%	5%
Prunus spinosa	Blackthorn	15%	-
Viburnum opulus	Guelder Rose	5%	-

4.3.3 **Treatment of Cutting Slopes:** The LVIA stated that the internal cutting slopes would receive a low growing grass seed mix with 2% wildflowers sown into subsoil. The mix composition for these areas of species-rich grassland was confirmed in the HMP, however, as this did not appear to match any commercially available seed mix, the following Basic General Purpose Meadow Mixture available from Emorsgate Seeds (EM1 mix) is now proposed, though the final determination of the seed mix composition will still take place following analysis of the seedbed material, surface water conditions and consultation with the local Wildlife Trust:

Grass Species (80% in total)	Common Name	% by weight
Agrostis capillaris	Common Bent	8%
Cynosurus cristatus	Crested Dog's Tail	40%
Festuca rubra	Slender Creeping Red Fescue	28%
Phleum bertolonii	Smaller Cat's Tail	4%

Wildflower Species (20% in total)	Common Name	% by weight
Achillea millefolium	Yarrow	0.5%
Centaurea nigra	Common Knapweed	2%
Galium verum	Lady's Bedstraw	1%
Leucanthemum vulgare	Ox-eye Daisy	2%
Lotus corniculatus	Bird's Foot Trefoil	2%
Plantago lanceolata	Ribwort Plantain	2%

Poterium sanguisorba	Salad Burnet	3%
Ranunculus acris	Meadow Buttercup	3%
Rumex acetosa	Common Sorrel	0.4%
Silene dioica	Red Campion	2%
Silene vulgaris	Bladder Campion	2%
Trifolium pratense	Wild Red Clover	0.1%

4.3.4 **Planting Techniques:** As confirmed previously, the tree and shrub species will be planted directly into previously prepared pits, with the spreading of topsoil over the whole area of planting being avoided to reduce weed competition and to conserve this valuable resource. Prior to pit preparation, the areas will be cross ripped to a maximum depth of 500mm at 1m centres to relieve compaction. Planting areas will be protected with rabbit proof fencing (see Detail HDA D1 – Dwg No 732.1/08)

4.3.5 **Maintenance:** The LVIA states that “*all newly planted areas would receive a minimum of 5 years maintenance*”, and this is reiterated in the HMP, where it refers to Years 1-2 being the Initial Establishment Phase, Years 3-5 being the Post Establishment Phase and Years 6-20 being the Post Establishment Phase. The LVIA also states that “*during the initial 5-year establishment period, all failed plant would be replaced as necessary to maintain stocking levels*” and this is enforced by Condition 58 for the approved eRCF, which also states a 5-year period for replacement. The HMP states that the defects liability period is 24 months from practical completion of the landscape works, but this will be adjusted to 60 months to comply with the discharge of Condition 58.

4.3.6 **Long Term Management:** A HMP was produced by Golder Associates in April 2011 which set out the long term management for the site. An update has been prepared by Green Consulting and will be submitted as part of the Section 73 submission.

5 CONCLUSIONS

5.1 Summary of Addendum

5.1.1 The summary of the LVIA (Section 8.5) has changed little between the time it was written (August 2008) and the writing of this addendum. The exception to this is that quarrying operations have started within the red line boundary, which has required the removal of a small number of trees, the aircraft hangar and other ancillary buildings that were due to be removed as part of the approved scheme. From the limited number of distant external views that are not interrupted by existing trees, the arched roofs of the main building of the IWMF would be visible 9.75m above surrounding ground levels of 51m AOD, but where surrounding ground levels are at 48m AOD, the apex of the roof would be visible by 12.75m.

- 5.1.2 The overall impact of the proposals on the landscape is predicted to remain at negligible and visual impacts would still be limited to a few residential properties, though quarrying operations now lie between these and the site of the IWMF. The assessment of visual impacts has not changed, and for most receptors remains at Minor Adverse. The mitigation measures proposed, including large areas of woodland planting, will, once they mature, help to screen the building, though the CHP stack will continue to project above this tree screen. Measures to mitigate the stack's visibility will still rely on it been clad in stainless steel to reflect the colour of the sky. As the planting matures, this will provide improvements to the overall quality of the surrounding landscape.
- 5.1.3 The small adjustment to the location of the CHP stack does not materially affect the presence, appearance or location of the stack presented on the photomontages. The positional change would be barely perceptible on the photomontages, and hence in the wider landscape in the future. No update is considered necessary to these drawings.
- 5.1.4 The excavation of material under part of the footprint of the proposed IWMF has already been completed as part of the permitted quarrying on Site A2. The trees in the TPO woodland of W2 and W3 adjacent to the quarrying operations are being monitored as part of the Site A2 Habitat Management Plan and are not showing any signs of distress. The change in design from vertical concrete retaining walls to a soil-nailed structure around the IWMF would retain more undisturbed ground in situ adjacent to the retained trees, and thus this would help to mitigate the risk of dewatering the trees. It is proposed that the retained trees are inspected at least once every 6 months, and during periods of lower than average rainfall. As and when the need for watering arises, this will be carrying out through the use of a tractor and bowser. The retained trees will be managed, through the use of selective coppicing, removal of dead or diseased trees, new infill planting, etc, thereby improving the overall health of the woodland.

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